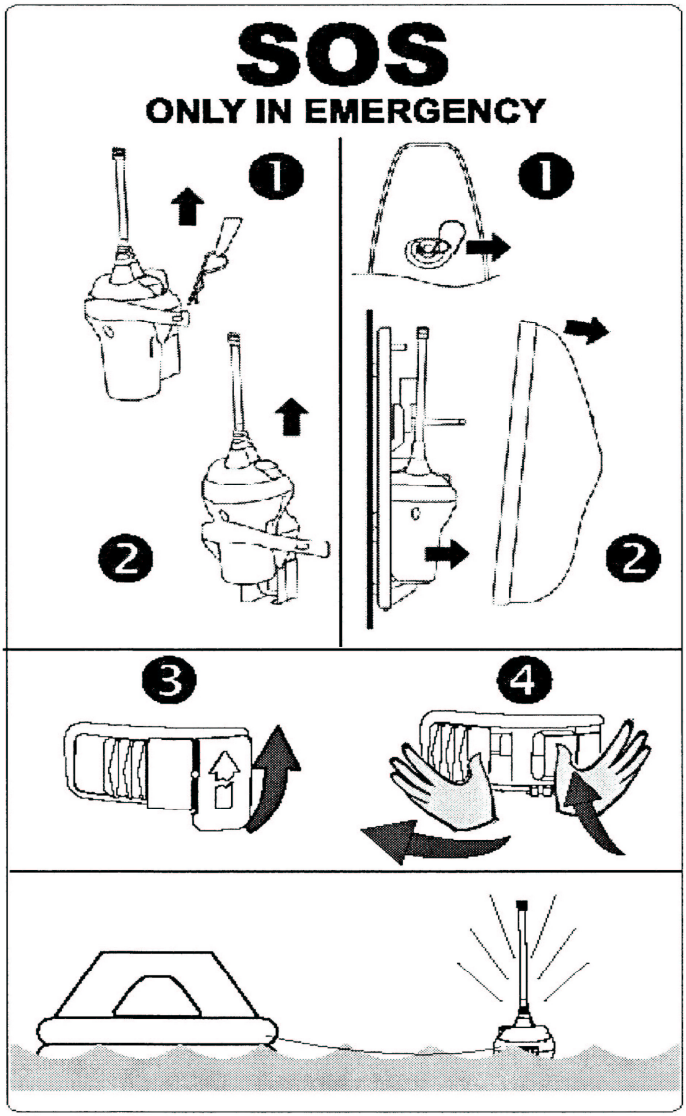
Kannad Marine EPIRB
USER MANUAL

This manual is applicable to the Kannad Marine EPIRB Automatic and Manual versions.



APPLICATION

This EPIRB (Emergency Position Indicating Radio Beacon) is designed for use in maritime emergencies and is approved for these contingencies.

It is not designed or recommended for use on land or in the air.

Use the EPIRB only in situations of grave and imminent danger. Intentional false alerts may result in penalties.

REGISTRATION

This EPIRB must be registered with the appropriate national authority.

The function of the EPIRB is to send an alert to the COSPAS-SARSAT satellites, as described in the Appendix. How soon an alert is received depends on the positions of the satellites at the time and can be influenced by overhead obstructions aboard the vessel. Rescue time following an alert depends on the overall performance of the Search and Rescue organisations, which is outside the control of Kannad Marine.

Disclaimer

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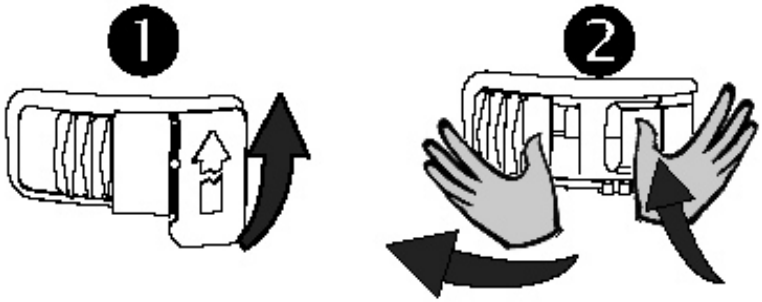
IN EMERGENCY

Remove the EPIRB completely from its bracket or enclosure

Hold the lanyard spool and throw the EPIRB into the water where it will self-activate

OR

If time permits, pull the tear-off tab up, then press the activation button and slide the switch left



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1 RECOMMENDATIONS AND SAFETY NOTICES

- **This EPIRB is an emergency device for use only in grave and imminent danger.**

- **False alerts endanger lives. Help to prevent them; understand how to activate and de-activate your equipment. Intentional false alerts may involve penalties.**

- **Read the complete manual before installing, testing or using the EPIRB.**

- **Ensure you test the EPIRB monthly – see section 10.1**

- **Ensure the EPIRB is registered with your local authorities (Flag State nation) – see section 2.**

- **The EPIRB contains no user serviceable parts. Do not open. Return to your dealer for battery replacement or other service.**

- **This device contains Lithium batteries; do not incinerate, puncture, deform or short-circuit. Take care if you need to dispose of these batteries or the complete EPIRB – refer to section 16.**

- **This device emits radio frequency radiation when activated. This radiation is not classed as harmful; however, it is advisable not to handle the antenna while the unit is activated.**

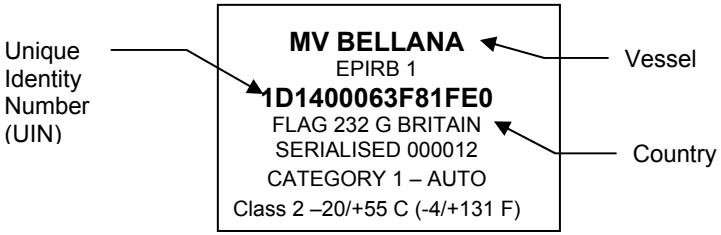
- **It is advisable not to stare directly at the strobe LEDs.**

2 MANDATORY REGISTRATION

You must register your EPIRB with the appropriate authorities.
Failure to register may slow the rescue and lead to loss of life.
In the USA failure to register may result in a fine.
In the UK you are legally required to register your EPIRB.

2.1 Overview

Every EPIRB is pre-programmed with a unique identity before it reaches the customer. This is done by the manufacturer or, in some cases, the distributor. The identity includes a 3 digit country code. This is the country that takes responsibility for storing that particular EPIRB's registration details. In most cases this is the country to which the vessel is flagged. The country programmed into your EPIRB can be found from its rear identity label. You **must** register with this country.



When you activate your EPIRB in an emergency, the nearest maritime search and rescue coordination centre (MRCC) will receive the message and decode the country code (e.g. 232). They will then access the registration database for that country and expect to find details of your vessel, its radio equipment and who to contact. If they fail to find this information, this may slow down any rescue.

2.2 How to register

Register on-line (where available) or complete the appropriate registration form with your EPIRB's identity; vessels details and emergency 24 hour contact numbers. Wherever possible the forms are also pre-printed with the correct mailing address and a faxback number. If your form does not have a mailing address, contact your supplier. When you have completed the form, you can choose to fax it or mail it.

It is usual to receive confirmation when you register. USA and UK owners will also receive a "Decal" sticker which you must fit to the EPIRB itself. The Decal is proof of registration. Not having a Decal may be an offence in some countries.

Useful registration contacts are:

USA Sarsat Beacon Registration
Mail or Fax to:
NOAA/SARSAT
NSOF, E/SP3
4231 Suitland Road
Suitland, MD 20746
Fax No. 301-817-4565
Tel; 1-888-212-SAVE (7283) or 301-817-4515.

On-line registration
www.beaconregistration.noaa.gov

UK EPIRB Registry
The Epirb Registry, Falmouth MRCC,
Pendennis Point, Castle Drive, Falmouth,
Cornwall, TR11 4WZ
Tel: + 44 (0)1326 211569
Fax: + 44 (0)1326 319264
Email: epirb@mcga.gov.uk

On-line registration
www.mcga.gov.uk/c4mca/epirb

Canada Beacon Registration
Canadian Beacon Registry
CFB Trenton
PO Box 1000 Stn Forces
Astra, ON K0K 3W0
Tel. 1-877-406-SOS1 (7671)
Fax: 1-877-406-FAX8 (3298)
Email: CBR@sarnet.dnd.ca

On-line registration
www.canadianbeaconregistry.forces.gc.ca

Australian coded beacons
Beacon Registration Section,
Australian Maritime Safety Authority
GPO Box 2181 Canberra City ACT 2601
Tel. +61 2 6279 5766
Fax.+61 2 9332 6323
On-line registration
www.beacons.amsa.gov.au

New Zealand coded beacons
Rescue Co-ordination Centre New Zealand P(
Box 30050, Lower Hutt 5040
Tel: +64 4 577 8033
Fax +64 4 577 8041
Email: 406registry@maritimenz.govt.nz

Details of the North American on-line registration systems are given on Page 39.

COSPAS-SARSAT provide registration details for many countries; use the web address *www.cospas-sarsat.org* and follow the links to *406 MHz Beacons* and *Registration*; alternatively. There is direct access to the database on line at; *www.406registration.com*

2.3 Warranty form

Please complete the warranty form supplied and fax or mail it to Kannad Marine. Failure to do this may delay any future warranty claim.

2.4 Radio licence

An EPIRB is a radio transmitter; if your vessel has already been allocated a radio callsign then you will already have a radio licence. It is recommended that you should update your licence to include details of your EPIRB.

2.5 Sale or transfer

EPIRBs registered in the USA, Canada, UK, Australia and New Zealand do not normally need to be re-programmed when transferred to a new vessel. Simply go on line (detail above) and complete another registration. For most other countries, the EPIRB must be re-programmed with either the new vessel's Maritime Mobile Station Identity (MMSI) or its radio callsign, whichever is required by the country controlling the new vessel. Since the EPIRB identity contains a country code, it follows that changing the flag state of the vessel also means the EPIRB must be re-programmed. For details of your nearest agent, either contact Kannad Marine using the details in the warranty section, or visit the service section of the web site:- *www.kannadmarine.com*.

Mandatory information for Australia and New Zealand.
Advice to owners of Emergency Position Indicating Radio Beacons:

Registration of 406 MHz satellite Emergency Position Indicating Radio Beacons (EPIRB) with the EPIRB Registration Section of the appropriate Maritime Safety Authority (MSA – see below) is mandatory because of the global alerting nature of the system. The information provided in the registration card is used only for rescue purposes. Fill in the owner registration card immediately on completion of the sales transaction. Mail the registration card immediately. If the beacon is to enter service immediately, complete the registration card and fax the information to the MSA. The original card must still be mailed to the MSA for hard-copy reference and filing. If the current owner is transferring the beacon to a new owner, the current owner is required to inform the MSA by letter, fax or telephone of the name and address of the new owner. The subsequent owner of the beacon is required to provide the MSA with the information shown on the owner registration card. This obligation transfers to all subsequent owners.

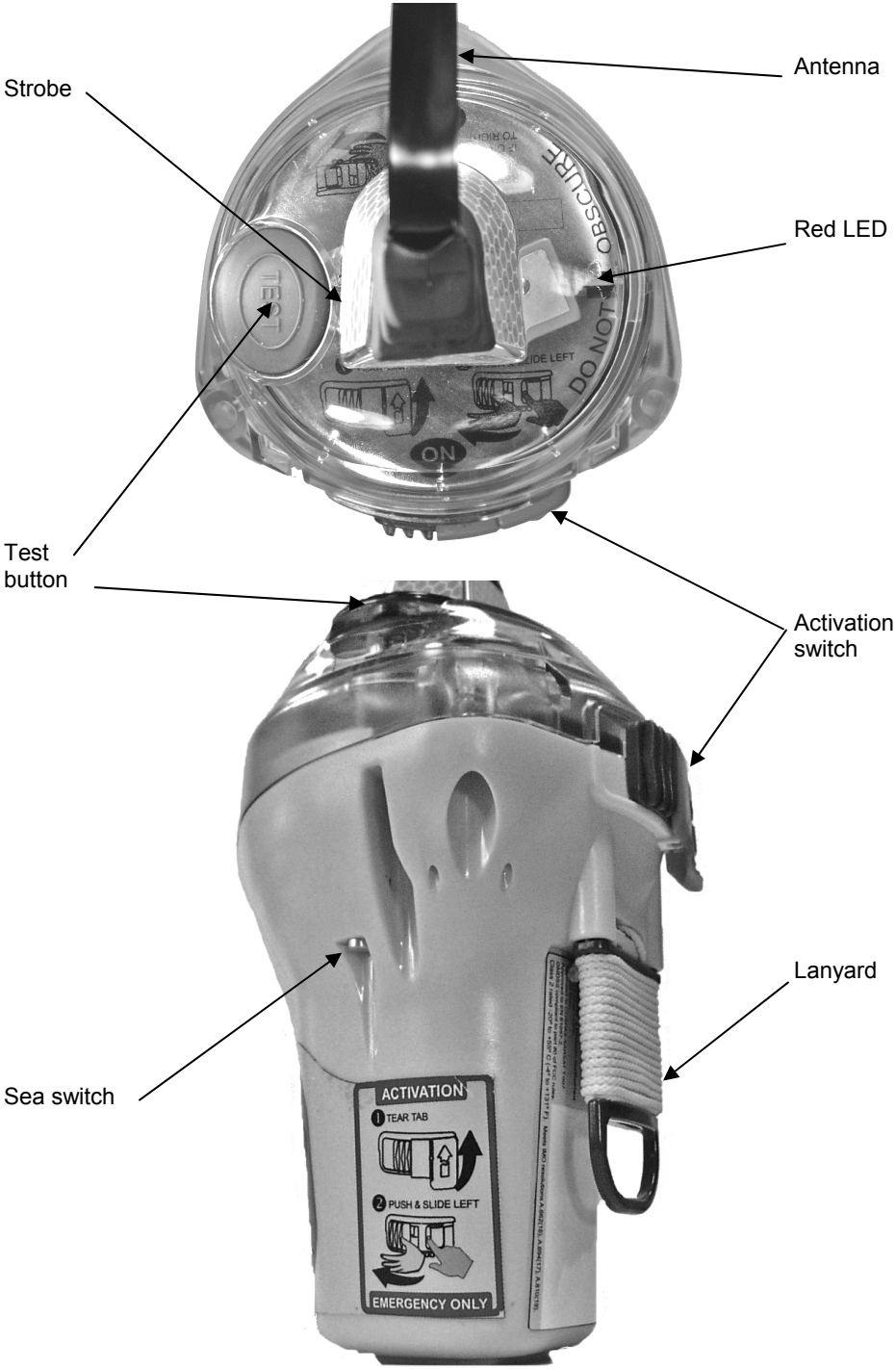
*The MSA is the Australian Maritime Safety Authority or the Maritime Safety Authority of New Zealand, as appropriate, whose respective fax numbers are +61 2 9332 6323 (Australia) and +64 4 577 8041 (NZ).

3 DESCRIPTION

The EPIRB is a powerful self-contained distress transmitter. It is powered by a Lithium battery that has a replacement interval of 5 years. An EPIRB is intended to be a one-shot device; once activated it will operate for at least 48 hours. It operates best while floating in water, but it can also be operated while on board a vessel or in a liferaft.

The key components of your EPIRB are:

Antenna	This is a flexible whip. It must be near vertical when operating. If the antenna gets bent, gently straighten it out.
Strobe light	These are the bright white LEDs visible through the clear lens dome. When the EPIRB is activated they will flash every few seconds.
Red LED	Visible through the clear lens dome at the rear of the EPIRB. This stays on or flashes to show which mode the EPIRB is in.
Sea switch	The two studs on the sides of the EPIRB are sea switch contacts. Submerge these in water to activate the EPIRB automatically. Keep these contacts clean – see section 10.2
Activation switch	Pull the tear-off tab upwards to release the switch, then push the switch in and move it fully left.
Test button	This button enables the user to run test sequences to verify the readiness of the EPIRB.
Lanyard	Pull the lanyard spool down to free it. Use the cord to tether the EPIRB to a survival craft.

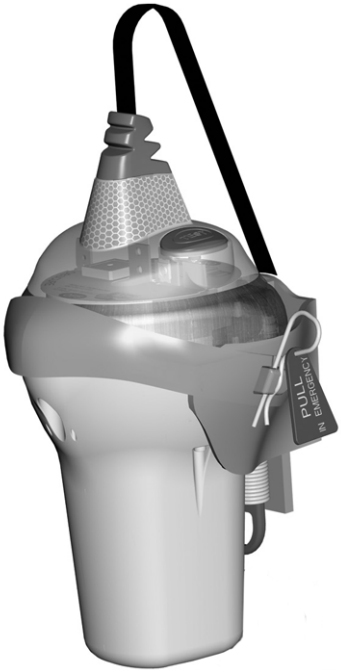

Strobe
Antenna
Red LED
Test button
Activation switch
Sea switch
Lanyard
TEST
ON
DO NOT OBSCURE
ACTIVATION
1 TEAR TAB
2 PUSH & SLIDE LEFT
EMERGENCY ONLY

3.1 Bulkhead bracket

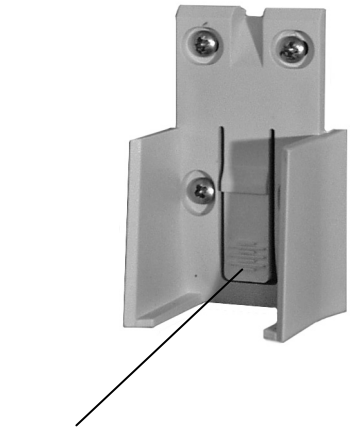
If you purchased the manually activated EPIRB version, this is normally supplied with a bulkhead mounting bracket (see section 8). The EPIRB is released by pulling out the R-clip.

The bulkhead bracket should be sited in plain view near an emergency exit.

To help prevent accidental activation and therefore a reduction in false alerts, Kannad Marine have developed a two part BULKHEAD bracket. The removable CARRYSAFE collar section contains a magnet to deactivate the sea water contacts of the EPIRB. This allows the EPIRB to be removed easily from the vessel and transported in, for example, a wet grab bag.



EPIRB in CARRYSAFE removable collar



Fixed bulkhead mount

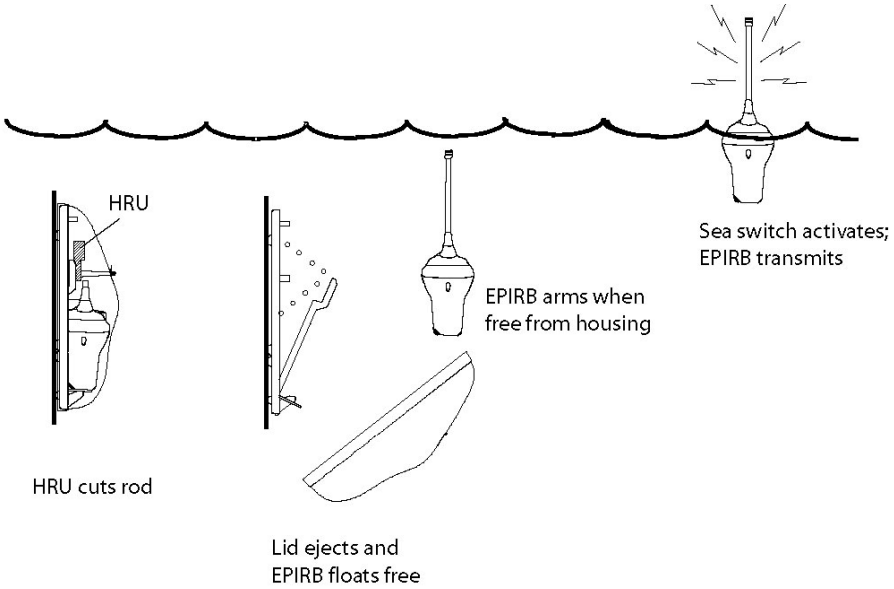
WARNING

The EPIRB will NOT be activated by moisture while it is in the bracket or in the CARRYSAFE collar (but it may activate if placed in close proximity to a magnet). The EPIRB must be removed from all parts of the bracket; it will then activate if immersed or if switched on manually.

3.2 Float-free enclosure

If you purchased the automatically activated version (‘a’ suffix), also known as the “float-free” version, then your EPIRB is supplied in a plastic enclosure (see section 9). This is much more than just a protective housing; it contains a spring-loaded lever which automatically pushes the enclosure lid off and releases the EPIRB if your vessel sinks. This automatic ejection is controlled by a device called a Hydrostatic Release Unit (HRU). If the enclosure is sinking then before it reaches 4 metres (13 feet) depth the HRU cuts a plastic rod that retains the lever; this ejects the lid and releases the EPIRB which floats to the surface and switches on automatically, as shown below:

1. As the vessel sinks, the enclosure fills with water. The HRU contains a blade which is released due to water pressure acting on a diaphragm. Before it reaches a depth of 4 metres, the HRU will operate and cut the plastic rod, releasing the coil spring.
2. The spring pushes the EPIRB and the enclosure lid outwards. As the lid pivots off it disengages from the moulding lip that helped hold it in place. The lid is weighted so it rolls over and falls away.
3. As the EPIRB floats away, it moves out of range of the magnet. Once away from the magnet its sea switch becomes armed.
4. The sea switch activates. The EPIRB then floats on the water surface with its strobe light flashing. After 50 seconds it makes its first distress transmission.



If you need to activate your EPIRB manually, it can be freed from the enclosure after pulling out the R-shaped retaining pin and removing the lid.

4 CONTROLS

4.1 Activation switch

This slide switch is protected against accidental activation by a red tear-off seal which indicates if the EPIRB has been activated previously.

The EPIRB can be activated manually by tearing the seal upwards, depressing the locking button on the switch and sliding the switch to the left.

When the EPIRB is activated the strobe will start to flash immediately, but the EPIRB will not make any distress transmissions for 50 seconds. This gives you a chance to turn off if you activated it accidentally. During this time the red LED illuminates continuously. When the red LED starts to flash, the 50 seconds delay has passed and distress transmissions have started.

4.2 TEST button

This control allows various test sequences to be run on the EPIRB. Details of these tests are given in Section 10.1.

4.3 Sea switch

It is important to realise that the only time the EPIRB is completely off is when it is fitted in its mounting bracket or enclosure. As soon as you take it out, a magnetic switch activates and puts the EPIRB into its “ready” state. It will not drain the battery in this state, but it will turn on automatically if the sea switch contacts are immersed in water. The sea contacts are the two studs, one on each side of the EPIRB.

Although you can control the EPIRB manually with the activation switch, the sea switch overrides any manual settings. For the manual switch to operate properly the EPIRB must first be dry so that the sea switch is de-activated.

To ensure the sea switch operates properly in rough seas, it has a built-in time delay. It has to be wet for at least 2 seconds before it will activate and it has to be dry for at least 8 seconds before it will de-activate.

4.4 LEDs

4.4.1 Strobe (white)

The strobe is the visual means of locating the EPIRB. When activated, the strobe flashes (approximately) 21 times per minute, with a pause during the time when the EPIRB is transmitting on 406 MHz.

4.4.2 Red LED

The red LED is used to indicate transmissions by the EPIRB. When activated, it flashes alternately with the strobe to indicate a good transmission on 121.5 MHz. Every 50 seconds it illuminates for 2 seconds to indicate a good transmission on 406 MHz; immediately before the transmission the LED flashes rapidly as a warning to the user.

When the EPIRB is first activated the red LED is illuminated continuously until the EPIRB begins to transmit, when it begins to flash. There is time to de-activate the EPIRB without causing an alert.

4.5 Buzzer

The EPIRB contains a buzzer to give audible feedback.

When the EPIRB is activated the buzzer pulses rapidly (whilst the red LED is ON continuously) as a warning that the EPIRB is about to transmit. Once the first transmission is complete, the buzzer sounds synchronously with the strobe.

The buzzer is also used to indicate the results of self-test.

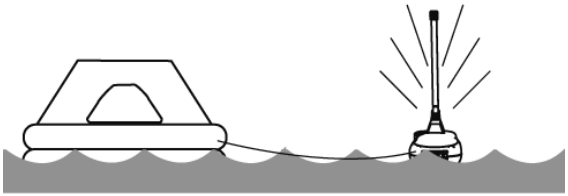
5 OPERATING PROCEDURE

An EPIRB is a piece of life saving equipment. Its sole purpose is to call for help. It must only be used in situations of grave and imminent danger. Misuse can involve a severe penalty.

5.1 Sinking

If you have a category 1 “float-free” enclosure (see marking on enclosure label), then if your vessel sinks, the EPIRB will automatically release itself from its enclosure before it reaches a depth of 4 metres. The EPIRB will float to the surface and start to operate because its sea switch is activated.

If possible, the EPIRB should be recovered and tied (using its lanyard) to the survival craft. An EPIRB is meant to mark survivors, not the accident scene.



For best operation leave the EPIRB floating in the sea near the survival craft, as this is the condition for which it was designed and tested.

NOTE: Satellite coverage at the time an alert is transmitted and, if activated onboard a ship or raft, overhead obstruction on the ship or raft, may affect whether and how soon an alert is received by the satellite system.

5.2 Abandon ship

If the vessel is sinking and there is time to fetch the EPIRB then this should always be done. Release the EPIRB from its mounting bracket as described in section 5.3 or 5.4 and carry it to one of the liferafts. Once the liferaft is in the water, uncoil the lanyard and tie it to the liferaft, then throw the EPIRB overboard so that it floats next to the liferaft. The EPIRB will operate because its sea switch will activate.

Getting the best from your EPIRB

Your EPIRB is designed and optimised to be used floating in the sea. However, if you have to use it in other situations, this section provides guidance on how to get the best from your EPIRB.

Aboard ship:

DO:

- Place the EPIRB in the open, clear of overhangs
- Keep the EPIRB upright (hold it if necessary)
- Switch on the EPIRB

DO NOT:

- Place the EPIRB close to large structures
- Lay the EPIRB on its side
- Place the EPIRB under cover
- Secure the EPIRB lanyard to the vessel

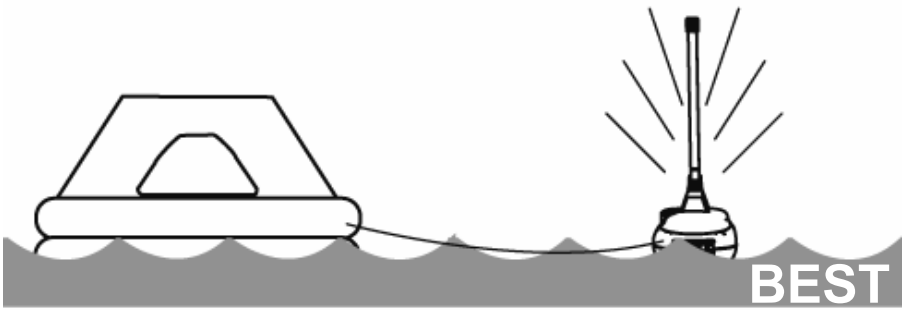
In a liferaft:

DO:

- Make sure you switch on the EPIRB
- Hold the EPIRB up as high as possible.

Note: the high intensity flashing strobe light may cause discomfort if viewed for prolonged periods.

We recommend that the EPIRB is used floating in the sea

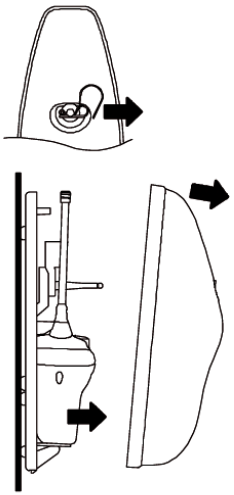


5.3 Releasing EPIRB from a bulkhead bracket

If you have an EPIRB fitted into a bulkhead bracket, pull the R-clip out of the bracket to release the retaining strap. Hold the antenna to prevent it springing loose and lift the EPIRB out of the mounting points.

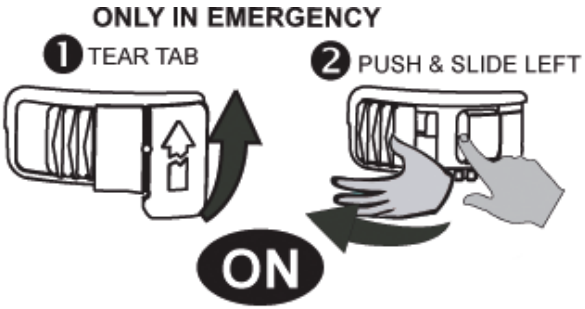
5.4 Releasing EPIRB from an enclosure

If your EPIRB is fitted inside a full enclosure, first remove the R-clip from the retaining rod, then pull off the enclosure cover and remove the EPIRB.



5.5 Manual activation

If the vessel is not sinking but there is imminent danger, remove the EPIRB from its bracket and activate it manually as shown below. Note that once activated it will flash immediately, but it will not transmit a distress call for 50 seconds. This gives you a chance to turn it off if you activated it in error.



Once activated the EPIRB **must** have its antenna as upright as possible and it must have a clear view of the sky for proper operation. Laying it on its side or placing it next to a metal bulkhead will impair its range and may fail to alert the rescue services. Avoid handling the antenna, as this will also impair performance.

5.6 Deactivation

If your EPIRB has been activated for a cumulative period in excess of 6 hours then its battery should be replaced. This is necessary to ensure that in an emergency it will operate for the full 48 hours required by international regulations. See section 10.4 for battery replacement instructions.

If the EPIRB was activated by mistake or if the emergency ends then the EPIRB can be reset back to its “ready” state as follows:

If EPIRB is still flashing then it has a fault. Refer to section 6 on False Alerts.

5.7 Re-fitting EPIRB

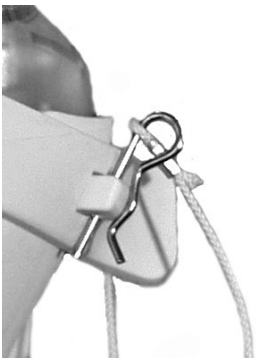
5.7.1 Refitting into bulkhead bracket

The EPIRB is now in its “ready” state, but its sea switch is still armed and will activate if it gets wet. To de-activate the EPIRB fully it must be replaced in its mounting bracket, where a magnet in the bracket will make the EPIRB safe.

Hold the bracket collar open and drop the EPIRB into the bracket. The slots in the EPIRB fit over the locating lugs in the bracket.

Hold the collar shut and fit the R-clip to secure the EPIRB. Fold over the antenna and locate the end moulding in the retaining slot.

Align slot with lug

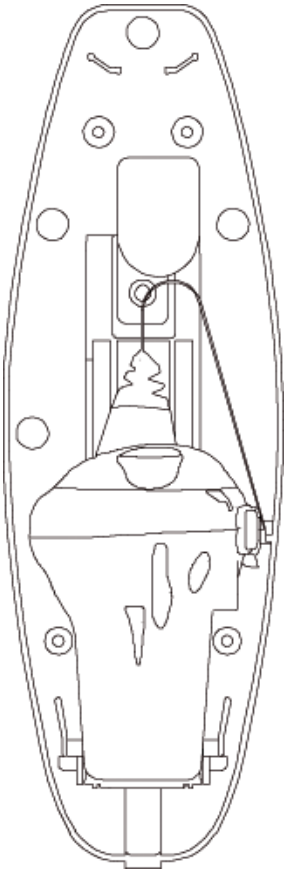


Fit R-clip

Locate end of antenna in slot

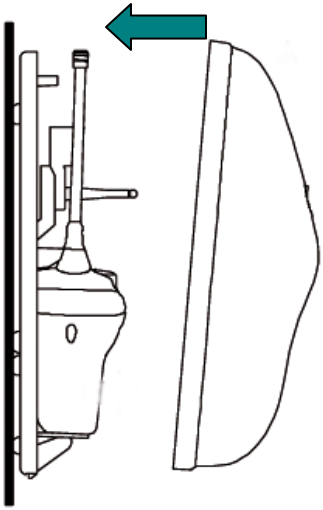
5.7.2 Re-fitting into enclosure

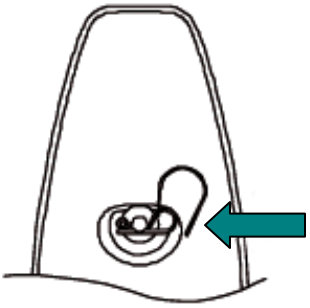
- Referring to the illustration, place the EPIRB on its side in the enclosure. As illustrated, the TEST button is furthest from the back of the enclosure.
- Engage base of EPIRB into the recess in the lever arm.
- Push the EPIRB into the enclosure to engage the retaining clip.
- Bend the antenna as shown and retain it in the recess.
- Refit cover squarely, engaging the guides at the top end and the rod through hole in cover.
- Locate cover onto back plate, then snap down over locating lug. Check that the cover is correctly located (see following page).
- Refit R-clip into groove at end of release rod. (Do not fit through hole)



CAUTION

Failure to fit EPIRB correctly may impair its ability to float free in an emergency





Cover correctly fitted to base

6 FALSE ALERTS

False alerts are a serious problem for the rescue services. About 90% of EPIRB-initiated distress alerts turn out to be false alerts. If your EPIRB should cause a false alert, follow the instructions below.

6.1 Stand down rescue services

It is most important that you contact the nearest search and rescue authorities and tell them it was a false alert, so that they can stand down any rescue services. Use any means at your disposal to make contact. Often this can be by VHF radio to the local coastguard or mobile phone if you are within coastal range, but MF/HF DSC and Inmarsat A, B, C, M may also be used.

Useful contacts:

Country	Region	Telephone	What to report
USA	Atlantic / Gulf of Mexico	(757) 398-6390	EPIRB Unique ID (UIN) Vessel name/ID Date, time & duration Cause of activation Location when activated
	Pacific	(510) 437 3700	
	From any location	(800) 323 7233	
UK	From any location	01326 317 575	

6.2 Turn off the EPIRB

If the EPIRB was activated by mistake, then turn it off:

- Remove the EPIRB from any water and dry its sea switch contacts.
- Wait about 8 seconds for the sea switch to de-activate.
- If the EPIRB is still flashing then it must have been turned on manually
- Slide the activation switch fully to the right.
- The EPIRB should now stop flashing.
- Refit the EPIRB correctly into its mounting bracket or enclosure.

Modern EPIRBs have sea switches and it is not uncommon for the sea switch to activate in rough seas or heavy rain simply because the EPIRB has been badly fitted in its mounting bracket. The EPIRB bracket contains a magnet to hold the EPIRB in an off state. If the EPIRB is wrongly fitted the magnet has no effect, so heavy seas may activate the sea switch. The cure is to ensure the EPIRB is correctly fitted as shown in section 5.7.

6.3 Dealing with a transmitting EPIRB

In the unlikely event that your EPIRB develops a fault and will not turn off, then prevent its radio signal from reaching the satellite using one of the following methods:

- Cut off or fold down the antenna. Wrap the EPIRB in metal foil and take it below decks.

or

- Cut off or fold down the antenna and place the EPIRB in a metal container or locker.

Take care when dealing with the antenna. Handle the antenna as little as possible. Refer to Section 1 for warnings.

Leave the EPIRB in this condition for 3 days until its battery is dead, then refer to section 10.5 for instructions on returning the EPIRB for servicing. See also section 7.

7 FULLY DISABLING AN EPIRB

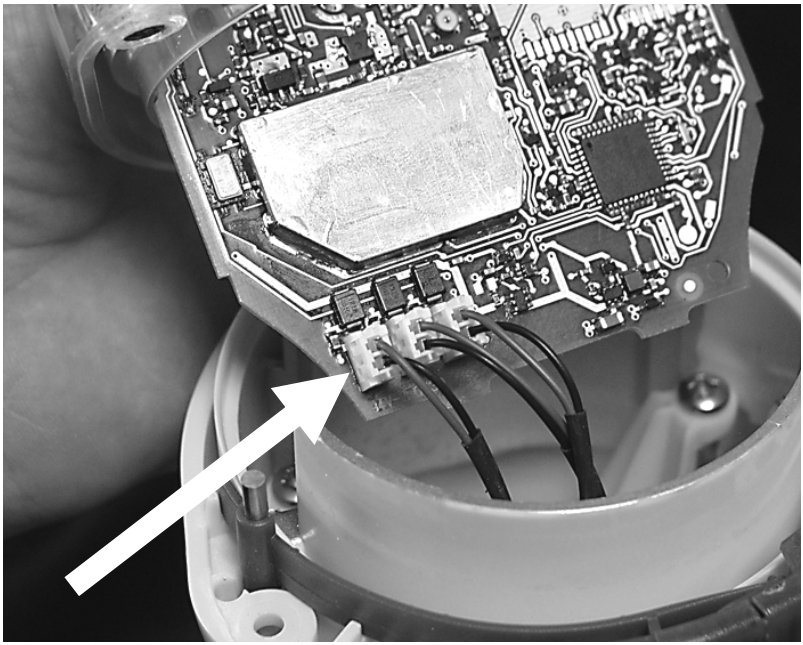
In the unlikely event that your EPIRB refuses to turn off then it may have a fault. Procedures for dealing with a faulty EPIRB are covered in section 6 on false alerts; in simple terms you should do the following:

- De-activate the EPIRB as described in section 6.2
- Suppress its signal by removing the antenna and wrapping the EPIRB in metal foil, as described in section 6.3
- Leave for 3 days until the battery is used up.

WE DO NOT RECOMMEND ANY OTHER COURSE OF ACTION.

However, if it is absolutely necessary to fully disable an EPIRB (by unplugging its battery), proceed as follows:

- Take the EPIRB below decks into a dry area.
- Locate a cross-headed screwdriver.
- Unscrew and retain the 3 sealing screws.
- Lift the lens dome off. This will lift the circuit board.
- **Avoid touching the circuit board if possible**
- Using fingers, unplug the three white battery connectors.
- The flashing will now cease.
- Collect all the parts and return them to your nearest service agent.



8 BULKHEAD BRACKET INSTALLATION

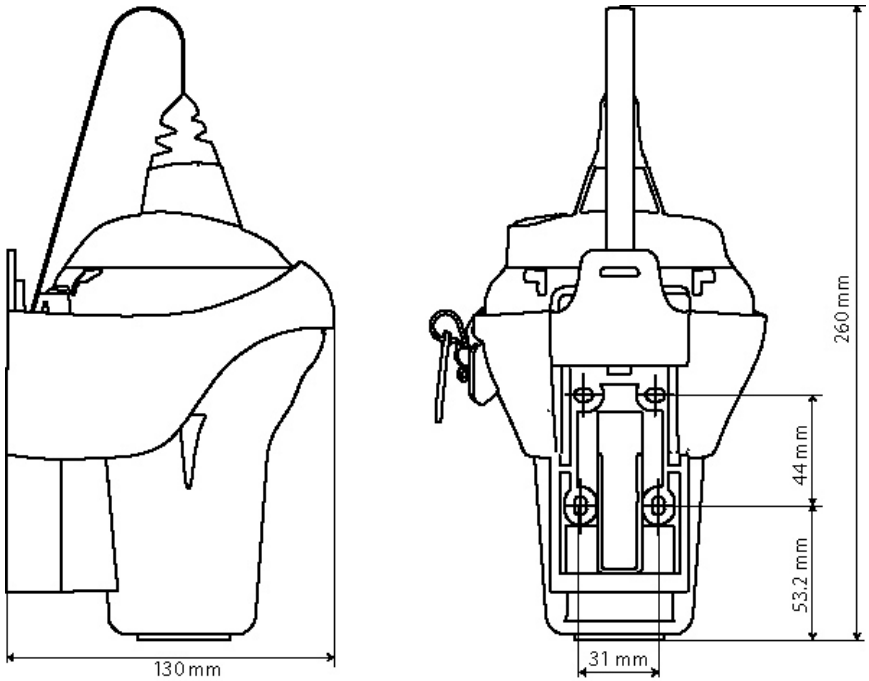
8.1 Siting

The bulkhead bracket should ideally be sited in plain view near an emergency exit. When choosing a suitable mounting position you should also consider:

- Ease of access in an emergency.
- Mount at least 1 metre (3') from any compass equipment.
- If there is any likelihood of the EPIRB being replaced in its bracket after activation then ensure that the antenna has as clear a view of the sky as possible.

8.2 Mounting procedure

The bulkhead bracket is supplied with four stainless steel screws 25mm (1") in length. The bracket mounts against a flat surface using 4 fixing points. Offer the bracket into the chosen position and mark through the mounting slots and drill 3mm (1/8") holes.

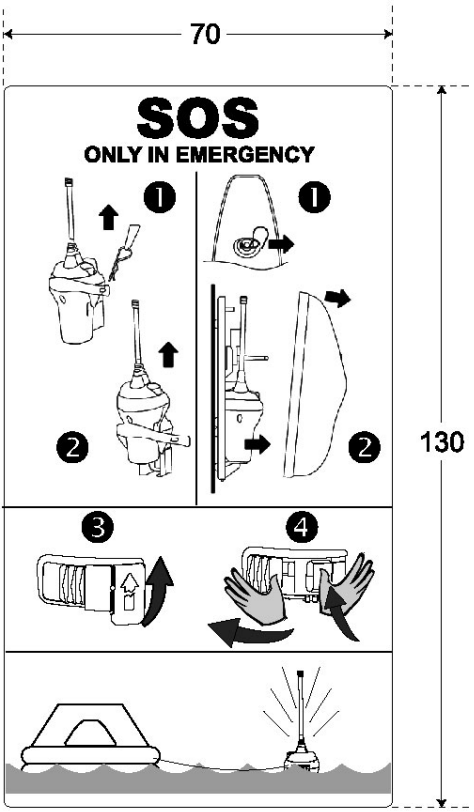


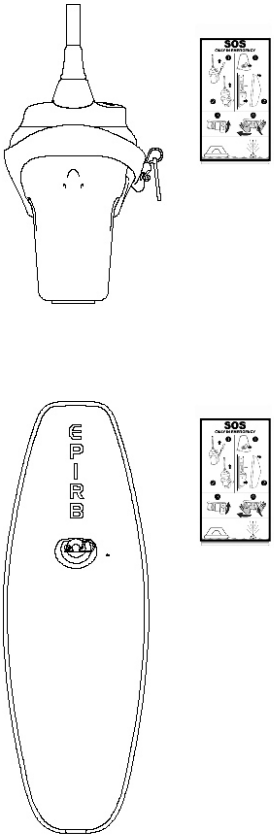
8.2.1 Mounting instruction plate

The EPIRB is supplied with a self-adhesive instruction plate, which has basic visual instructions showing how to operate the EPIRB in an emergency.

Mount the instruction plate next to the EPIRB so that it is easily visible in an emergency.

During vessel maintenance, ensure the plate does not get painted over or cleaned down with strong degreasing solvents.



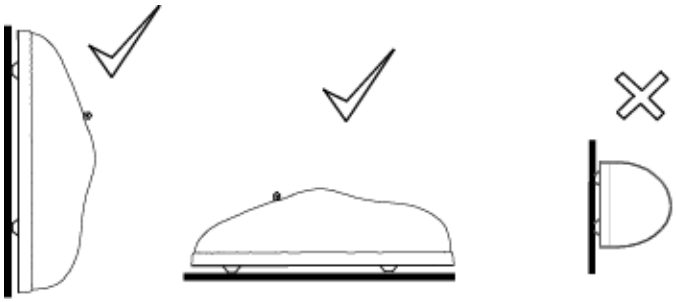


Mount instruction plate next to housing

9 ENCLOSURE INSTALLATION

9.1 Siting

The enclosure should be mounted upright against a vertical bulkhead. Alternately, it may be mounted horizontally on a flat surface, such as a cabin roof. No other orientations are recommended.



If you have a float-free EPIRB it is critical that you choose a position where the released EPIRB will not get trapped by overhangs, rigging, antennas etc, should the vessel ever sink. An expanse of flat surface is required to allow the enclosure lid to eject. Use the list below to choose a suitable mounting position:

- Mount on the outside of the vessel's structure, as high as possible.
- Mount close to the vessel's navigation position.
- Consider ease of access in an emergency.

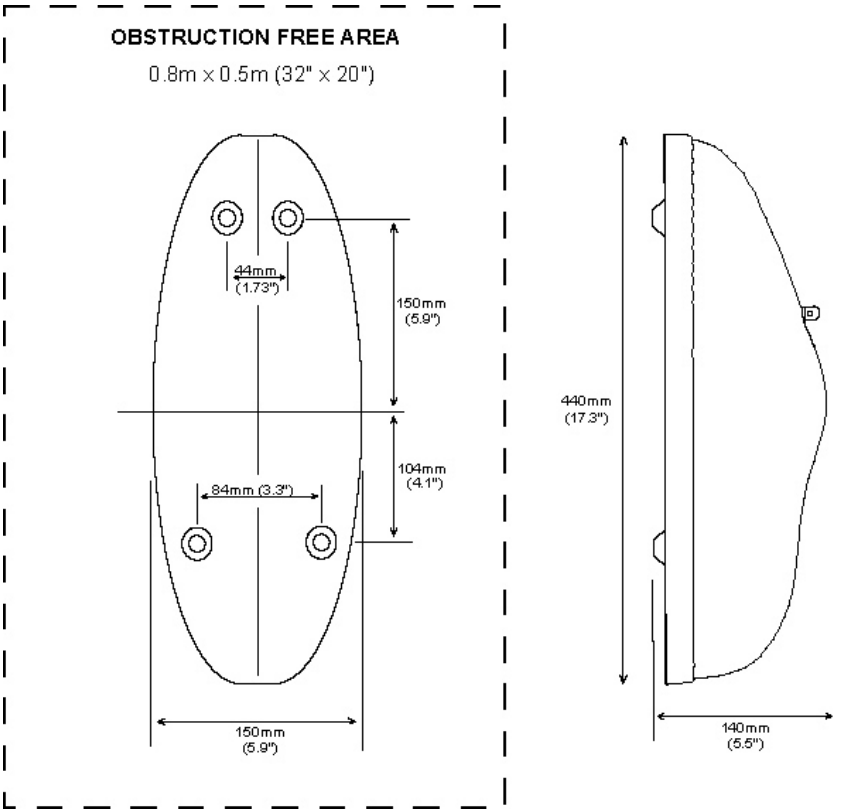
AVOID:

- Positions with insufficient space for lid ejection and maintenance.
- Positions within 1m (3') of any compass equipment.
- Mounting within 2m (6') of any Radar antenna.
- Direct impact from waves
- Siting where damage is likely.
- Exhaust fumes, chemical and oil sources.

9.2 Mounting procedure

The enclosure mounts against a flat surface using 4 fixing points. See illustration for mounting dimensions, or use the backplate of the enclosure as a marking guide. To do this, pull out the R-shaped clip and remove the enclosure lid. Note how the EPIRB fits then remove it to somewhere dry (its sea switch is now armed).

Offer the back plate into the chosen position and mark through the mounting holes. The enclosure is supplied with a set of 25mm (1") stainless steel fixings. If you are using the nuts and bolts, drill 6mm (1/4") holes where you have marked. You will need a 4mm Allen key to tighten the bolts. If the rear of the mounting surface is inaccessible, use the self-tapping screws supplied. Always fit washers under heads of the screws to avoid damaging the plastic.



9.3 Mounting instruction plate

The EPIRB is supplied with a rigid plate giving visual instructions on how to operate the EPIRB in an emergency. Mount this next to your EPIRB as explained in section 8.2.1.

9.4 Marking Hydrostatic Release Unit (HRU) expiry

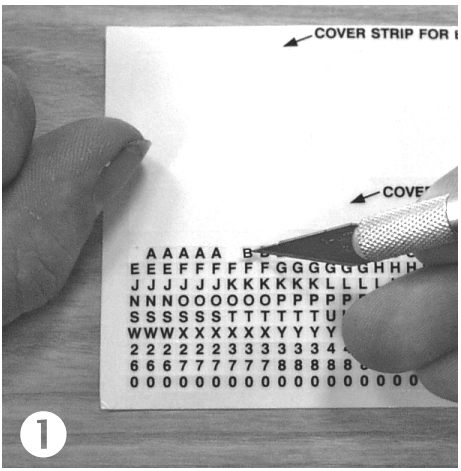
If you are installing a float-free EPIRB you **must** now mark the HRU expiry date. The HRU has a 2 year in-service life which starts as soon as it gets exposure to a marine environment. Hence the 2 years starts at installation and it is left to the customer to mark this date during installation. A date 2 years into the future should be marked on the HRU body and copied onto the label on the side of the enclosure. The HRU is marked by cutting out the corresponding dates on its label, as shown on the separate leaflet.

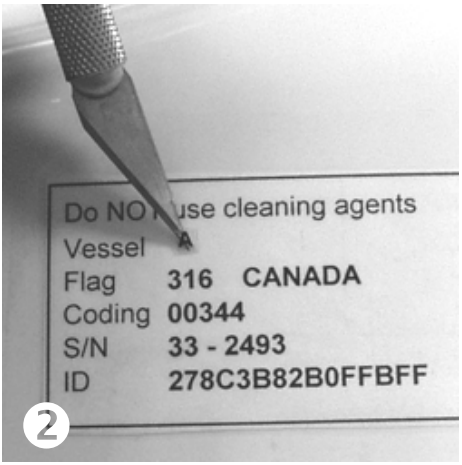
The enclosure should be marked using the alpha-numeric stickers provided, then covering them with the clear adhesive label provided (but see 9.5 first). The preferred date format is month and year, for example: JUN 2006.

9.5 Marking vessel name

In many countries it is usual to have your EPIRB programmed by your supplier (see registration section). Your supplier will then mark all the EPIRB labels accordingly. However, if your EPIRB was purchased in the USA, Canada or UK then your EPIRB will have all the necessary markings except for vessel name. In these countries it is usually left to the customer to mark the vessel name during installation.

It is strongly recommended (and is mandatory in some countries) that the vessel name is marked on the rear of the EPIRB itself and also on the enclosure, if you have one. Use the alpha-numeric stickers provided to mark the vessel name (or its abbreviation) on the top line of the EPIRB's rear label and again on the enclosure label. Protect the markings with a section of the clear adhesive label provided.





1. Pick off required letter (a small knife blade works well)
2. Apply letter to label
   Repeat until name is complete
3. Cover letters with clear label

10 MAINTENANCE

10.1 Self Test & inspection

As an important item of safety equipment, your EPIRB should be checked regularly. The EPIRB has a built-in test capability that can be used as a confidence check. This self-test confirms that the battery is healthy, that both distress transmitters are functional and that the strobe light is operational. The self-test should be performed **monthly**, but not more frequently. It should be performed during the first 5 minutes of the hour, to minimise disturbance on the emergency channel.

10.1.1 Standard Self Test

1. Press the TEST button until the red LED lights, then release the button.

2. The EPIRB will test its internal components and then make test transmissions at 121.5 and 406 MHz whilst monitoring the transmitter output.

3. If all tests are successful, the buzzer will sound and the red and white strobe LEDs will flash together a number of times.

4. If any test is unsuccessful, nothing will flash and the red LED will go out.

5. The number of times the LEDs flash is an indication of the accumulated time the battery has been in use

Accumulated Battery Use (hours)	Number of flashes/beeps
0 to 4	3
5 to 6	2
More than 6	1

REGARDLESS OF THE BATTERY STATE, THE EPIRB SHOULD ALWAYS BE ACTIVATED IN AN EMERGENCY – IT MAY STILL GENERATE AN ALERT.

If the EPIRB fails Self Test, it must be serviced.

10.1.2 Power consumption warning

If the TEST button is held down after any test has completed, a warning is given: after 20 seconds, the red LED flashes rapidly and the buzzer sounds. This indicates that battery capacity is being reduced for no reason.

If this warning persists after the TEST button is released, the EPIRB is faulty and must be serviced.

10.2 Mechanical inspection

During these monthly checks you should take the opportunity to inspect the EPIRB and its mountings visually for deterioration or damage.

Note that the EPIRB is designed to allow water to circulate around the outer edge of the dome (inside the outer clear plastic edge but outside the waterproof seal). Consequently a volume of water in this area is of no significance.

On the EPIRB itself check the following:

- Inspect the EPIRB for any obvious damage
- Check that the lanyard is not tied to the vessel structure
- Check the battery is within its expiry date
- Check that the sea switches are clean and free from paint or grease
- Check that the antenna has not been creased, so that it erects to a near-vertical position when released.

If during these checks it is discovered that the frangible seal has been broken, then the EPIRB may have been activated. The battery condition is thus suspect, and the battery should be replaced at the earliest possible opportunity. It is, however, possible to verify the condition of the battery to a limited extent by using the indication of the self-test, as described in section 10.1.1. If the LEDs flash more than once, then there is a good chance that the battery will provide the specified performance. IT IS RECOMMENDED THAT THE BATTERY IS REPLACED REGARDLESS OF SUCH VERIFICATION.

If you have a bulkhead bracket:

- Check the EPIRB is correctly fitted and secure in its bracket
- Check that the two halves of the bracket are securely connected

If you have an enclosure:

- Check the HRU is within its expiry date
- Confirm the cover can be easily removed
- Ensure the EPIRB base is correctly fitted into the D-shaped recess and that the antenna is correctly stowed

If the EPIRB or its mounting needs cleaning then this should be done using warm soapy water and a damp (not wet) cloth. Do not use strong detergents or solvents.

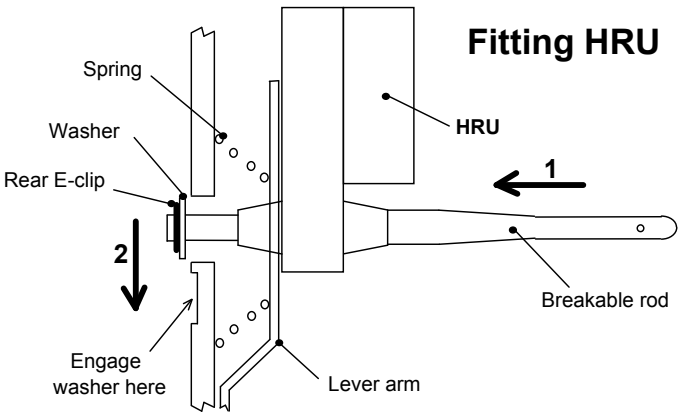
Do not paint the EPIRB or its mounting
Do not clean with detergents or solvents
During vessel cleansing or painting remove the EPIRB and its mounting.

10.3 HRU replacement

If you have an EPIRB in an enclosure marked Category 1 then it contains a Hydrostatic Release Unit (HRU). This has a 2 year replacement interval. **WARNING: Failure to replace the HRU at 2-yearly intervals may result in it not actuating correctly and releasing the EPIRB in an emergency.** The expiry date, which is marked on the HRU and on the enclosure side label, should be checked regularly.

When the HRU expires you can obtain a replacement at a local marine store; ask for a Kannad Marine HRU Replacement Kit (Part No. K82-962-009A). The kit is complete with breakable plastic rod, date labels and instruction sheet. The HRU replacement procedure is as follows:

- On the enclosure, remove the R-clip and pull the cover slowly off.
- Remove the EPIRB and stow it in a dry place. **It will activate if wet.**
- Hold down the lever arm to take up the force of the spring.
- Push the HRU back then upwards out of the slot in the lever arm.
- When the rear clip disengages slowly release the lever arm.
- The HRU with its breakable rod can now be lifted free and replaced.
- Using pliers, remove the rear E-clip and slide off the old HRU.
- Fit the new HRU over the new rod, with its label facing outward.
- Refit the washer and the rear E-clip. Ensure rod moves freely.
- Mark the HRU with an expiry date 2 years into the future.
- Slide the HRU into the slot in the lever arm and push lever arm down.
- Engage rear washer into backplate by pushing back and sliding down.
- Look under the spring and check that the washer is fully engaged.
- Fit the EPIRB as shown in 5.7.2.
- Refit cover by engaging hole over rod and then snapping into place. Check that the cover is correctly fitted.
- Refit R-clip through top of rod.
- On side of cover, remove old HRU expiry date and mark new date.



10.4 Battery replacement

The EPIRB uses three 9V Lithium battery packs, Kannad Marine type K82-1058A. Typically these will have to be replaced every 5 years. The exact battery expiry date is marked on the rear of the EPIRB lens dome; if you have a full enclosure, it is also marked on the outside of the enclosure. The battery expiry date should be checked regularly. You will need to replace the battery when:

- The expiry date has been reached **or**
- The EPIRB has been used in an emergency situation **or**
- A false activation exceeds 6 hours of use.

REGARDLESS OF THE BATTERY STATE, THE EPIRB SHOULD ALWAYS BE ACTIVATED IN AN EMERGENCY – IT MAY STILL GENERATE AN ALERT.

A battery is a one shot device. It is not rechargeable or user replaceable. Battery replacement **must** be carried out by a Kannad Marine approved service agent. The entire set of batteries should be replaced together.

Lithium batteries have special disposal requirements. Never incinerate a Lithium battery. Never dispose of one at sea. Your service agent will deal with battery disposal.

10.5 Servicing

All servicing must be carried out by a Kannad Marine approved service agent. Always call your nearest agent and talk to their service department before returning equipment. You can find your nearest service agent from:

- The Kannad Marine web site: *www.kannadmarine.com*
- Contacting Kannad Marine direct (see warranty page).
- Contacting a Kannad Marine distributor

If the EPIRB has to be returned, the original packaging should be used if possible.

10.6 Transportation

Passenger Aircraft;
This product contains small lithium metal batteries. The EPIRB can normally be taken on board a passenger aircraft as a personal item in carry-on hand baggage. We recommend declaring the EPIRB to airline staff at check in, in the same way you would for a laptop PC or video camera.

As air cargo;
This product contains small lithium metal batteries and may be classed as 'not restricted' for air cargo when handled according to requirement PI 970 of the IATA Dangerous Goods Regulations (51st Edition). Always check with the carrier concerned for any additional shipment restrictions that may apply.

10.7 GMDSS inspections

If your vessel is subject to GMDSS regulations then you can expect to get regular visits from ship surveyors enforcing national legislation. They will check the expiry dates and activate the EPIRB to ensure that it meets the required performance criteria. They will read the identity message stored inside the EPIRB to confirm registration details. Leisure vessels are not subject to these inspections. However, in some countries passenger and fishing vessels are covered by the legislation.

11 HOW DOES IT WORK?

Your EPIRB contains two radio transmitters: one operating at 406 MHz which transmits an alert which can be received by satellites and one operating at 121.5 MHz which transmits a signal which can be received by overflying aircraft and Search & Rescue (SAR) homing receivers. When you activate the EPIRB, both transmitters start broadcasting signals. Providing the EPIRB's batteries are in good condition, the transmission will continue for a minimum of 48 hours.

The 406 MHz alert signal can be detected by SAR satellites. American, European and Indian authorities operate a series of satellites in low-earth and geostationary orbits to detect and locate aviators, mariners and land-based users in distress. The satellites, together with a world-wide network of ground stations and Mission Control Centres (MCC) form the International COSPAS-SARSAT Program whose mission is to relay distress signals to the international search and rescue community.

Ground stations track these satellites and process the distress signals to obtain a location (by using Doppler location techniques*) of the distress. The processed information is then forwarded to an MCC where it is combined with other location and registration information and passed to a Rescue Coordination Centre (RCC) which alerts the appropriate SAR authorities. Successive satellite passes refine and confirm this information. Alternatively, beacons such as Smartfind Plus can use the GPS system to obtain a very accurate position. This position is then transmitted as part of the distress signal.

*** For an explanation, visit the webpage:**
http://www.cospas-sarsat.org/DescriptionOverview/doppler.htm

The network of orbiting satellites can detect signals over the entire surface of the earth; in addition, there are four geostationary satellites that appear fixed in position and which detect signals over enormous areas (approximately one-third of the surface of the earth, but excluding Polar Regions). However, the geostationary satellites, because they are fixed with respect to the earth, cannot determine the position of the EPIRB using Doppler.

Once it has been activated for a distress situation, an EPIRB should not be switched off until the SAR agency directs this.

12 TECHNICAL SPECIFICATION

406 MHz Transmitter	Operating frequency	406.028 MHz ± 1 kHz
	Power output	5 W typical
	Modulation	Phase (16K0GID)
121.5 MHz Homer	Operating frequency	121.5 MHz ±3.5 kHz
	Power output	50 mW radiated typical
	Modulation	Swept tone AM (3K20A3X)
Strobe light	Type	Two high intensity LEDs
	Light output	0.75 cd minimum
	Flash rate	23 flashes per minute
Battery	Type	Lithium manganese dioxide
	Operating life	48 hours minimum
	Shelf life	5 years typical in service
Environment	Operating temperature	-20 °C to +55 °C (-4° F to +131° F)
	Storage temperature	-30 °C to +70 °C (-22° F to +158° F)
	Automatic release depth	4 metres max. (13 feet)
Physical	Weight	770 grams (1.7 lb)
	Height of body	21 cm (8.2 inches)
	Length of antenna	18 cm (7 inches)
Approvals	Satellite system	Cospas-Sarsat T.001/T.007
	Europe	IEC 61097-2 Marine Equipment Directive
	USA	USCG/FCC approved FCC ID : KLS-XX-X
	Worldwide	IEC 61097-2
	Meets IMO regulations	A.662(16); A.694(17); A.810(19); A.814(19)

This device complies with the GMDSS provisions of part 80 of the FCC rules.

12.1 Declarations of Conformity

Silver Point
Airport Service Road
Portsmouth PO3 5PB
United Kingdom
Int + 44 (0)23 9262 3900
www.mcmurdo.co.uk

mcmurdo

EC DECLARATION OF CONFORMITY

We, McMurdo Limited, declare under our sole responsibility that the following products comply with both Council Directive 1999/5/EC on radio equipment and telecommunications terminal equipment (RTTE) and Council Directive 96/98/EC on marine equipment (the MED), as amended.

product designation: **McMurdo E5 SMARTFIND**
SIMRAD EP50
Sailor SE406-II
Kannad Marine Automatic EPIRB
Kannad Marine Manual EPIRB
McMurdo G5 SMARTFIND PLUS
SIMRAD EG50
Sailor SGE406-II

product type: 406 MHz EPIRB (Cospas-Sarsat)

Intended usage: these products meet the requirements identified in A.1/5.6 of the MED. These products provide for distress alerting via the Cospas-Sarsat system and for Search And Rescue locating; in addition to meeting SOLAS carriage requirements they also provide for voluntary participation in the GMDSS within the maritime mobile service.

These products belong to Class 2.11 - Marine Radio Equipment

These products have been tested to verify compliance with all the essential requirements of the Directives as detailed at Annex to this declaration.

These products carry the conformity marking:
(where 'XX' represents the last two digits of the year in which the mark was affixed)

CE 0191 0191 XX

Signed: Date: 8 - 2 - 2010

Name: Neil Jordan
Title: Engineering Manager

ATTENTION
The attention of the specifier, purchaser, installer, or user is drawn to special measures and limitations to use, detailed in the product owner manuals, which must be observed when the product is taken into service to maintain compliance with the Directive.

mcmurdo

Annex Conformity Assessment

Standards and other normative documents

These products have been tested to verify compliance with all applicable requirements of the following international instruments, regulations and testing standards:

Cospas-Sarsat T.007 Issue 4 (2005)
IEC 60945 (2002-08)
IEC 61097-2 (2002-09)
IMO Resolution A.662(16)
IMO Resolution A.694(17)
IMO Resolution A.696(17)
IMO Resolution A.810(19) as amended

MED Conformity Assessment Modules

Conformity assessment modules B and D defined in the MED Directive have been applied to these products as detailed below:

EC TYPE-EXAMINATION (MODULE B)

These products conform to EC Type Examination Certificate numbers:

E5 and variants: QQ-MED-18/09
G5 and variants: QQ-MED-17/09

issued by:

QinetiQ Notified Body ID: 0191
Ively Road, Farnborough, GU14 0LX, United Kingdom

PRODUCTION-QUALITY ASSURANCE (MODULE D)

These products are manufactured under conformity assessment Module D production-quality assurance, with the involvement of:

QinetiQ Notified Body ID: 0191
Ively Road, Farnborough, GU14 0LX, United Kingdom

RTTE Conformity Assessment Procedure

The conformity assessment procedure referred to in Article 10 and detailed in Annex IV of the RTTE Directive has been followed: all essential radio test suites have been carried out, and the assessment procedure has been completed with the involvement of:

QinetiQ Notified Body ID: 0191
Ively Road, Farnborough, GU14 0LX, United Kingdom

Technical Construction File

A Technical Construction File for these products is held by McMurdo Ltd.

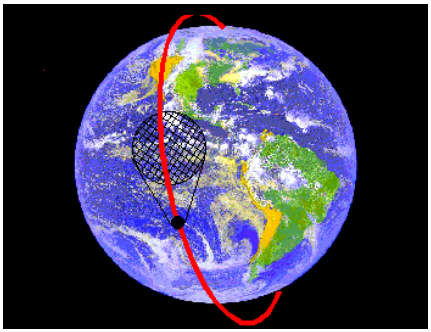
BS EN ISO 9001
Registered in England No.6952856
Registered Office: Silver Point, Airport Service Road
Portsmouth PO3 5PB United Kingdom

13 APPENDIX – SATELLITE SYSTEMS

COSPAS-SARSAT satellite system

The COSPAS-SARSAT system provides distress alert and location information to search and rescue authorities anywhere in the world for maritime, aviation and terrestrial users in distress.

There are two satellite arrays carrying the COSPAS-SARSAT system. The principal array is LEOSAR (Low Earth Orbit Search and Rescue) which has seven satellites in polar and near-polar orbits. The orbits of these satellites are arranged to scan the entire surface of the Earth; on average, a satellite comes into view every 45 minutes.



LEOSAR satellite path and scan footprint

Distress transmissions from EPIRBs are picked up by the satellites and retransmitted to ground receiving stations, which then pass the message to the appropriate rescue organisation. On average, the total delay from activation of an EPIRB to the message being received by the rescue services is 90 minutes.

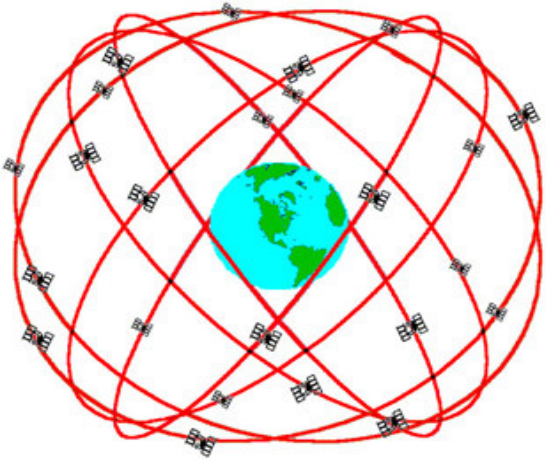
COSPAS-SARSAT is in an advanced stage of commissioning the second satellite array, GEOSAR (Geostationary Search and Rescue). This array uses geostationary satellites which are always in view (over their area of coverage), so that reception of the EPIRB signal is virtually instantaneous

GEOSAR coverage

Global Positioning System (GPS)

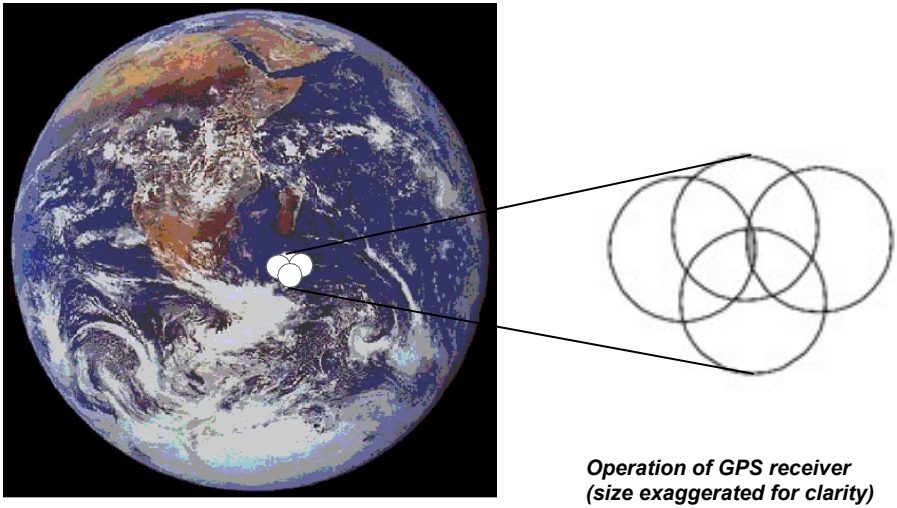
The GPS system is a satellite array which enables a receiver located anywhere on Earth to determine its position with high accuracy.

The array uses 24 satellites (plus spares) orbiting the Earth in six orbital planes, four satellites per plane, as shown below. These are arranged so that at least five satellites are within range of any receiver (which can be anywhere) at all times.



GPS satellite orbital planes

Each satellite transmits information which enables its position and distance from the receiver to be calculated. By combining these data for multiple satellites, the position of the receiver can be calculated.



Operation of GPS receiver (size exaggerated for clarity)

14 USA EPIRB REGISTRY SYSTEM

Important information

Beacon registration is now available on-line.
This is the preferred method of registration; point your browser to
http://www.beaconregistration.noaa.gov
and follow the instructions on-screen.

Use the EPIRB form.

Other Information
At present, NOAA still accepts registration by mail or fax. The registration forms are pre-printed with the correct mailing address and fax number. A registration form may be downloaded from the website given above.

However you register the beacon, you will be sent a decal which must be attached to the beacon.

Emergency Contact
It is VITAL that the Emergency Contact information is accurate, particularly regarding the telephone number, as this will be used to validate an alert. Only if the beacon registration and approximate location details can be confirmed will USCG (United States Coast Guard) launch an immediate rescue, otherwise there will be a delay whilst further alerts from the same source are received and verified.

Registration address:

NOAA SARSAT Beacon Registration
NSOF, E/SP3,
4231 Suitland Road
Suitland MD 20746

FAX: 301-817-4565

Helpline: 301-817-4515 or toll-free: 1-888-212-SAVE (7283).

15 WARRANTY STATEMENT

Kannad Marine is a brand of McMurdo Limited. Subject to the provisions set out below McMurdo Ltd warrants that this product will be free of defects in materials and workmanship for a period of five years from the date of purchase. McMurdo Ltd will not be liable to the buyer under the above warranty:-

- for any defect arising from fair wear and tear, wilful damage, negligence, abnormal working conditions, failure to follow McMurdo Ltd's instructions (whether oral or in writing) including a failure to install properly and/or to use batteries recommended and/or supplied by McMurdo Ltd, misuse or alterations or repair of the product by persons other than McMurdo Ltd or an approved service agent;
- for parts, materials or equipment not manufactured by McMurdo Ltd in respect of which the buyer shall only be entitled to the benefit of any warranty or guarantee given by the manufacturer to McMurdo Ltd;
- for the battery storage life which is specifically excluded from this warranty;
- for the HRU (were fitted) storage life which is specifically excluded from this warranty;
- if the total price for the product has not been paid.

THE LIMITED WARRANTY STATED ABOVE IS EXCLUSIVE AND IN LIEU OF ANY OTHER WARRANTY, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. McMurdo Ltd will not be liable for indirect, special, incidental or consequential damages of any kind sustained from any cause. In no event shall McMurdo Ltd be liable for any breach of warranty or other claim in an amount exceeding the purchase price of the product. This warranty does not affect any statutory rights of the consumer.

In order to be valid, claims must be made under the above warranty in writing as soon as practicable after discovery of the defect or failure and within the warranty period referred to above. Proof of purchase will be required. The claim should be sent together with the product in question to the address set out below or to an Approved Service Agent.

Following a valid warranty claim McMurdo Ltd shall be entitled to repair or replace the product (or part) in question free of charge, or at McMurdo Ltd's sole discretion to refund to the buyer the price of the product (or a proportional part of the price). McMurdo Ltd shall not be liable to a buyer who is not a consumer for any other loss or damage (whether indirect, special or consequential loss of profit or otherwise) costs, expenses or other claims for compensation which arise out of or in connection with this product. In the case of a consumer McMurdo Ltd shall only be liable where other loss or damage is foreseeable.

Nothing shall limit McMurdo Ltd's liability for death or personal injury caused by its negligence. This warranty is to be interpreted under English law.

All enquiries relating to this warranty or approved service agents should be sent to:

McMurdo Limited, Silver Point, Airport Service Road, Portsmouth, Hampshire, PO3 5PB, UK
Telephone: Int + 44 (0) 23 9262 3900 Fax: Int + 44 (0) 23 9262 3998
Web: *www.kannadmarine.com* **Email: customerservice@kannadmarine.com**

16 END OF LIFE STATEMENT

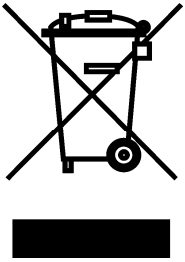
At the end of the EPIRB's useful life, it is vital that the battery be disconnected from the main unit to prevent false alarms. False alarms cause expensive disruption to Search and Rescue services and may endanger lives as a consequence. It is also necessary that the EPIRB and its battery pack be disposed of in a manner that does not present a threat of environmental damage.

Battery Removal

To disconnect the battery, turn the EPIRB over and remove the three retaining screws using a cross headed screwdriver. Separate the clear dome from the main body of the EPIRB. The circuit board will lift away with the clear dome; if possible avoid touching the PCB. Using fingers; unplug the three white battery connectors and cover the individual white battery connectors with sticky tape to prevent inadvertent short-circuiting. Using a cross headed screwdriver remove the two retaining screws that hold the battery assembly in place. The battery assembly can now be removed from the main body of the EPIRB.

Disposal

The Waste Electrical and Electronic Equipment (WEEE) Directive aims to minimise any adverse impact of electronic equipment on the environment, both during the product lifetime and when it becomes waste. Within the European Union this legislation is mandated by Directive 2002/96/EC, and there is similar legislation in most other continents. The directive applies to all electronic products such as IT, household appliances, portable electronics etc., and imposes requirements to collect, treat, recover and recycle each product at its end of life. Electronic end-user products must also carry a WEEE label (as below) and recovery and recycling information has to be provided to the recycler.



This EPIRB product contains traces of lithium in the battery pack. In addition it may contain lead and brominated flame retardants (BFRs), both in the housing material and circuit boards.
In keeping with the directive, Kannad Marine strongly recommends that this EPIRB product and its battery pack be disposed of in a sensible and considerate manner. For example, do not simply discard the product in the domestic waste. Instead take it to a civil recycling facility, or contact Kannad Marine for advice.

Kannad Marine

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Portsmouth PO3 5PB
United Kingdom

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